

**HALFTONING METHOD AND SYSTEM PROVIDING INCREASED
NUMBER OF DENSITIES PER BASIC HALFTONE
CELL FOR CONSTANT INPUT**

Abstract of the Disclosure

Apparatus and method for flexible digital halftoning are provided in which novel pattern choices are allowed by not restricting the basic halftone patterns to grow sequentially. Rather, positions in a threshold array allow multiple transitions between on (i.e., printed with toner/ink) and off (not printed) as a function of the input value at the corresponding position. In one embodiment, multiple threshold matrices are employed and the output decision is a vote (e.g., exclusive OR) of the outputs of the individual threshold matrices. In another embodiment, each position contains an arbitrary bit vector to express the output for each input. This flexibility in growing basic halftone patterns allows the number of densities output to be larger than $n+1$ (where "n" is the number of dots within a basic halftone cell).